Date: February 6, 2006

GEORGIA DEPARTMENT OF TRANSPORTATION

STATE OF GEORGIA

SPECIAL PROVISION

PROJECT NO.:

P.I. NO.:

Section 439—Portland Cement Concrete Pavement (Special)

Add the following to Subsection 439.1.02.A:

Section 511—Reinforcement Steel

Add the following to Subsection 439.1.02.B:

SOP 10

Add the following to Subsection 439.1.03:

D. Paving Plan

Submit a paving plan for approval before beginning construction operations. Include details of all operations in the concrete paving process, including transverse and longitudinal construction joint layout, sequencing, curing, lighting, early opening, leave-outs, sawing, construction methods and description of all equipment. Transmit the paving plan to the Engineer for approval, 30 days prior to concrete placement.

Delete Subsection 439.2.C and substitute the following:

C. Composition of Concrete

Design the concrete mix to confirm to the following requirements:

1. Coarse Aggregate

   Use coarse aggregate size No. 467, 67 or 57 for plain Portland cement concrete pavement.

   Use size No. 67 or 57 coarse aggregate for continuous reinforced concrete pavement.

   Separate size No. 467 in individual stockpiles of size No. 4 and size No. 67. Blend according to approved mix design proportions.

2. Fine Aggregate

   Use fine aggregate that meets the requirements for size No. 10.

   When using two sizes or sources of fine aggregate to produce the proper gradation, blend according to the approved design proportions.

Add the following to Subsection 439.2:

D. Reinforcing Steel

Provide deformed steel for bar reinforcement in accordance with Section 853 of the Specifications or as shown on the plan details. Provide approved positioning and supporting devices (baskets and chairs) capable of securing and holding the reinforcing steel in proper position before and during paving. Store supporting devices in a manner to prevent corrosion and distortion.

1. Dowels

   Provide smooth, straight dowels of the size shown on the plan details, free of burrs and conforming to the requirements of Subsection 853.2.08.

   For expansion joint construction, provide dowel caps on the lubricated end of each dowel bar. Provide dowel caps filled with a soft compressible material with enough range of movement to allow complete closure of the expansion joint.

2. Tie Bars

   Provide straight deformed steel tie bars of the size shown on the plan details and conforming to the requirements of Subsection 853.2.09. Provide either multiple-piece tie bars or single-piece tie bars as shown on the plan details. Provide multiple-piece tie bars composed of 2 pieces of deformed reinforcing steel with a coupling capable of developing a minimum tensile strength of 125% of the design yield strength of the deformed steel when tensile-tested in the assembled configuration.

3. Support Chairs

   Provide bar supports capable of securing and holding the reinforcing steel in the proper position and conforming to the requirements of Subsection 511.2, "Materials". Except the use of mortar blocks are restricted to concrete lug anchor construction.

Add the following to Subsection 439.3.01:

B. Certified Concrete Plant Operator

If using onsite batch plant, have the Office of Materials and Research certify the concrete plant batcher and technician in accordance with SOP 10, "Quality Assurance of Concrete Plants in Georgia" before paving.

Delete Subsection 439.3.02 and substitute the following:

439.3.02 Equipment

A. Equipment Requirements

Provide equipment and tools to perform the work. Provide equipment that allows the paver to operate at a constant production rate and minimizes starting and stopping. The Engineer may limit the production rate or batch size if equipment does not keep pace with the other operations or causes poor workmanship.

B. Ramp Screeds and Hand Finishing Tools

Ramp screeds and hand finishing tools may be used instead of conventional mainline paving equipment.

C. Mixing Plant

If using onsite batch plant, have the Office of Materials and Research inspect and certify the mixing plant before paving. Approval and compliance of the plant will be in accordance with SOP 10, "Quality Assurance of Concrete Plants in Georgia" and Section 500 of the Specifications.

Scales used to weigh concrete materials and the devices to measure water will meet the requirements of Subsection 500.3.02.C.3.

D. Spreading Equipment

Provide self-propelled mechanical spreader(s) capable of placing the concrete on the base material over the full width and depth of the pavement. Equip the spreader with a hopper or other type of spreading equipment that will distribute the concrete over the base material without segregation.

E. Hauling Equipment

Provide sufficient number of trucks to ensure adequate and continuous supply of concrete to the paver. Equip trucks hauling concrete from the plant to the paver with covers to protect the material from inclement weather and to reduce evaporation loss.

F. Paving Equipment

Ensure that equipment operating on the pavement has rubber-tired wheels or flat steel wheels. Wait to operate concrete or shoulder paving equipment on the pavement until the concrete is 14 days old or has 2,500 psi (15 MPa) compressive strength.

Paving equipment may be either slip-form or fixed form.

G. Surface Finish Equipment

Provide a self-propelled machine to produce the surface finish of the mainline and transverse plastic concrete grooving. Ensure that the equipment uses rectangular-shaped steel tines of the same size and uniform length. Use tines with a width between 0.08 in. (2 mm) and 0.130 in. (3.5 mm). Space the tines 3/8 in. (10 mm) apart, not to exceed 1/2 in. (13 mm). Hand-operated tining equipment that produces an equivalent texture may be used only on small or irregularly shaped areas or, when permitted, in emergencies due to equipment breakdown.

H. Curing Equipment

Provide a self-propelled machine for applying membrane curing compound using mechanically pressurized spraying equipment with atomizing nozzles. Provide equipment and controls that maintain the required uniform rate of application over the entire paving area. Provide a machine capable of containing drift of curing compound to outlying areas. Hand-operated pressurized spraying equipment with atomizing nozzles may only be used on small or irregular areas or, when permitted, in emergencies due to equipment breakdown.

I. Protective Equipment

Provide materials to protect the concrete edges and surface against rain, including:

- Standard metal forms or wood planks to protect the pavement edges
- Covering materials such as burlap or cotton mats, curing paper, or plastic sheeting material to protect the pavement surface

J. Reinforcing Steel Inserting Equipment (Tie Bars)

Provide inserting equipment that accurately inserts and positions reinforcing steel in the plastic concrete parallel to the profile grade and horizontal alignment in accordance to plan details.

Delete Subsection 439.3.05.B.6 and substitute with the following:

6. Deposit concrete near the formed joints. Place or discharge concrete only in the center of joint assembly.

Add the following to Subsection 439.3.05.B:

8. Arrange the operation so that leave-outs in continuous reinforced concrete pavement are unnecessary. The Engineer may grant permission for leave-outs in case of emergency provided a plan is approved for increasing the reinforcement, if required, at no additional expense to the Department.

Delete Subsection 439.3.05.D and substitute the following:

D. Protection From Rain

Protect the unhardened concrete from rain. See Subsection 439.3.02.I, “Protective Equipment”.

When rain is imminent, stop paving operations and place forms against the sides of the pavement. Cover the surface of the unhardened concrete with the protective covering. Remove and replace areas damaged from rain with no additional expense to the Department.

Delete Subsection 439.3.05.G.4 and substitute the following:

4. When removing and replacing a pavement section, remove an area to the nearest transverse joint and the full width of the lane. Saw the sections to be removed to a vertical face and replace the concrete using a construction joint with dowels.

Delete Subsection 439.3.05.H.3 and substitute the following:

3. Longitudinal Sawed Joints

    a. Cut longitudinal sawed joints with a mechanical saw within three days after the concrete is placed and before traffic or equipment enters the pavement.

    b. When concrete is placed against existing concrete, begin sawing when concrete has hardened enough to prevent surface raveling, usually 4 hours after placement, but no later than 24 hours. Concrete should be sawn to a depth of 2 in. (50 mm).

Add the following to Subsection 430.3.05.H:

8. Concrete Lug Anchors for Continuously Reinforced Concrete Pavement (CRC)

    Construct lug anchors in accordance with the plan details. Use concrete of the same Class as specified for the CRC pavement.

    a. Excavate the trenches for lug anchors after the base and when required by the plans, the asphalt interlayer is in place.

    b. Place the reinforcement steel in the trench according to plan details. Maintain clearances and support reinforcement steel using mortar blocks fabricated according to Subsection 511.2.1.g of the Specifications. Remove any earth material or other debris which may have dislodged and fallen into the trench before the reinforcement steel is placed.

    c. Construct lug anchors using one of the following two methods:

        1. Method 1: Construct lug anchors with pavement slab in one continuous placement of concrete to form a monolithic structure.

            a. Place the concrete in layers not to exceed 18 in. (450 mm) thick.

            b. Compact each layer with suitable vibrators according to Subsection 430.3.05.D, except place lug anchor concrete against earth, not forms.

            c. Remove all loose earth before concrete placement and do not allow earth to be placed into the concrete during placement and compaction.

        2. Method 2: Construct lug anchors in advance of the construction of the pavement slab.

            a. Construct lug anchors according to Subsection 430.3.05.K.8, except construct a shear key joint between the anchor and slab.

            b. Construct shear key joint according to plan details.

            c. During the time interval between completion of the lug anchor and placement of the concrete slab, keep the shear key joint and the protruding reinforcement steel clean and free of dirt or other materials which may weaken the bond between the lug anchors and the pavement slab.

Delete Subsection 439.3.06.I and substitute with the following:

I. Texture Depth Testing

Test the pavement surface to determine the texture depth by using GDT 72 at locations selected by the Engineer.

Transversely saw-groove areas with a surface texture depth less than 0.018 in. (0.5 mm) at no additional expense to the Department. Meet the depth requirement of 0.035 in. (0.9 mm) or greater.

Perform saw-grooving to meet the following dimensions:

Width	1/8 in. (3 mm)
Depth	3/16 in. (5 mm)
Spacing	1/2 in. (12 mm) center-to-center

Add the following to Subsection 439.4:

Reinforced concrete lug anchors below the bottom of the normal pavement will be measured by the linear foot along the axis of each lug anchor perpendicular to the center line of the pavement.

Add the following to Subsection 439.5:

Payment for reinforced concrete lug anchors, when listed as a pay item in the Proposal, will be paid for at the Contract Unit Price per linear foot (meter). Payment is full compensation for furnishing and installing all materials, including reinforcement, for all excavation, for the satisfactory disposal of surplus material and for all incidentals necessary to complete the anchor.

Payment will be made under:

Item No. 439	Reinforced Concrete Lug Anchors	Per linear foot (meter)